



TITLE OF INVENTION

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HOT DRINK CUP LID WITH COOLING AIR-FLOW invented by
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CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO A MICROFICHE APPENDIX

Not Applicable.

BACKGROUND OF THE INVENTION

This invention is in the field of cup lids for hot beverages and is designed to improve the safety and enjoyment when drinking very hot liquids, such as hot coffee. This new and unique utility invention for an article of manufacture is a tremendous improvement over prior art.

This invention is uniquely different from prior art.

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PRIOR ART

For example U.S. Patent No. US 6,571,973 B1 to Tripsianes (June 2003) reveals a cup lid with a cooling spillover chamber. This cooling method is limited in its cooling ability and is awkward during use as the liquid is transferred to the spillover chamber and then to the sipping opening. Further, this cup lid with cooling chamber is costly to manufacture and cumbersome to use.

Another U.S. Patent No. 6,176,390 to Kemp (January 2001) discloses a cup lid with a cooling reservoir. This cooling method is awkward to use as the liquid is transferred to the cooling reservoir and then to the drinking opening. This lid would be costly to manufacture and cumbersome to use.

Another U.S. Patent No. US 6,578,726 B1 to Schaefer (June 2003) describes a cup lid made in one or two pieces. The aroma vent holes are not placed to create a cooling action and only allow the aroma to escape. Therefore the hot liquid is not cooled by this method. Further, this cup lid with aroma vent holes is costly to manufacture.

Another U.S. Patent No. US 4,589,569 to Clements (May 1986) describes an angular raised portion mounting the drinking opening. A vent hole and a drain hole are included but neither are adequately designed to cool. Therefore, this cup lid does not cool the hot liquid while drinking.

Further U.S. Patent Numbers referenced listed below do not address the need for cooling hot liquid beverages when being sipped. U.S. Patent Documents Referenced:

2,640,337 to Bryant (1953)

4,412,629 TO Dart & Dart (1983)

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4,756,440 to Gartner (1988)
4,953,743 to Dart & Darras (1990)
4,915,250 to Hayes (1990)
4,899,902 to DeMars (1990)
4,949,865 to Turner (1990)
5,111,961 to Van Melle (1992)
5,699,927 to Lane & Williams (1997)
5,613,619 to Van Melle (1997)
5,624,053 to Freek (1997)
5,839,601 to Van Melle (1998)
5,706,972 to Sousa (1998)
5,799,814 to Schaefer & Pendergrass (1998)
5,996,837 to Freek (1999)
6,089,397 to Van Melle (2000)
6,095,033 to Melton (2000)
D429,443 to D'Alessio (2000)
6,305,571 to Chu (2001)
6,374,726 to Melton (2002)
6,419,105 to Bruce (2002)
6,612,456 B1 to Hundley & Quatmann (2003)
6,644,490 B2 to Clarke (2003)
6,659,302 B1 to Lin (2003)
6,679,397 B2 to Smith, et al (2004)
D485,758 to Clark, et al (2004)
6,889,859 to Leon (2005)

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BRIEF SUMMARY OF THE INVENTION

This invention was developed to answer an urgent need by the purveyors and consumers of hot liquid such as hot coffee, hot tea, hot chocolate, etc., when drinking from a cup such as that offered at fast food restaurants, carry-outs, and service mini-marts. When liquids are hot they can burn the lips and inside surface of the mouth. If cooled quickly with such as ice cubes, then they will be cold too soon; if allowed to cool slowly in the cup with some sort of lid, it will be too long before the liquid is drinkable. This is especially apparent when traveling. Therefore I have invented the HOT DRINK CUP LID WITH COOLING AIR-FLOW, which allows air to pass over the hot liquid as it is sipped and thus reducing the temperature of the liquid passing through the drinking opening but not prematurely lowering the temperature of the body of liquid remaining in the cup. This allows the enjoyment of a hot liquid for a longer period of time and increases the safety of drinking hot liquids from a cup with a lid such as the disposable cups and lids offered at fast food restaurants, carry-outs, service mini-marts, and other establishments.

BRIEF DESCRIPTION OF SEVERAL VIEW OF THE DRAWING

Figure 1: Perspective

Figure 2: Side View

Figure 3: Top View

Figure 4: Cross Section A-A Through Center of Lid

Figure 5: Diagrammatic of Cooling Action

DETAILED DESCRIPTION OF THE INVENTION

In accordance with the invention, I describe the HOT DRINK CUP LID WITH COOLING AIR-FLOW invention, which provides a lid **1**, in Figure #1, with cooling air-flow hole **8** for use on beverage containers, such as a drinking cup **14**. Specifically the lid **1** has a raised central area **4** with a drinking area plane **5** and drinking hole **6** located on one side of the drinking area plane **5**.

Further, there is an angular raised portion **15** raising away from the drinking hole **6**; and the adjacent angular recessed portion **16** which angles down and away from the drinking hole **6**. Further, centrally located on the angular recessed portion **16** is the cooling air-flow hole **8**. The cooling air-flow hole **8** is located on the same radius as the drinking hole **6**, and in a plane slightly lower than the plane of the drinking hole **6**. The cooling air is drawn through the cooling air-flow hole **8** and into the open space above the hot liquid/beverage **17** and up through

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the drinking hole **6**, traveling with the hot liquid/beverage **17** out of the drinking hole **6**, thus cooling the hot liquid/beverage **17** as the liquid/beverage **17** is being consumed.

The prototype of the lid **1** embodied a raised circular area **4** on which a drinking hole **6** is placed in drinking area plane **5**; other forms of embodiment where a raised drinking area is present would be covered by this invention. The prototype of the lid **1** incorporates the raised drinking area plane **5**, the drinking hole **6**, the recessed cooling air-flow hole **8**, and the angular members **9, 15, 16** resulting in a cooling effect of hot liquid/beverages **17** at the exit of the drinking hole **6** yet retaining the interior heat within the cup **14**. The cooling air-flow hole **8** is located above the rim of the cup **14** and below the drinking hole **6**. The optimum position of the cooling air-flow hole **8** is apparent in figure 4 (cross-sectional view).

No know invention or device of prior art utilizes a cooling air-flow hole **8** arrangement of embodiment so as to pass cooling air over hot liquid/beverages **17** as the cup **14** is tilted in at normal drinking angle and the hot liquid/beverage **17** is drawn out through the drinking hole **6**, Figure 5.